



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,172	03/31/2004	Raju Hormis	884.B72US1	7129
21186 7590 01/07/2009 SCHWEGMAN, LUNDBERG & WOESSNER, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402				
EXAMINER				
HOLDER, ANNER N				
ART UNIT		PAPER NUMBER		
2621				
MAIL DATE		DELIVERY MODE		
01/07/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/815,172

Applicant(s)

HORMIS ET AL.

Examiner

ANNER HOLDER

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 4-6 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-21 and 26-29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Paper No(s)/Mail Date \_\_\_\_\_
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 08/06/08 have been fully considered but they are not persuasive. However, upon further consideration, a new ground(s) of rejection is made in view of Simsic et al. US 6,269,484 B1 regarding claims 1-3, 7-21, and 26-29. The Examiner respectfully disagrees with Applicant's arguments. Simsic teaches de-interlacing based upon a prediction error resulting from the motion vector being below a threshold value. [fig. 6; col. 8 lines 34-58 (emphasis lines 48-58)] Simsic fairly read upon and suggests the limitation as claimed.
2. Applicant's arguments, see page 8 §101 Rejection of the Claims, filed 08/06/08, with respect to claims 14-21 have been fully considered and are persuasive. The rejection of claims 14-21 has been withdrawn.

### ***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-3 and 7-13 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent and recent Federal Circuit decisions indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claims recite a series of steps or acts to be performed, the claims neither transform underlying subject matter nor positively tie to another statutory

category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. For example there is no device recited within the claims to accomplish the method claimed.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 18, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Simsic et al. (Simsic) US 6,269,484 B1.

7. As to claim 1, Simsic teaches receiving a compressed video stream; [Abstract; Fig. 1; Fig. 2; Fig. 4-7; Col. 4 Lines 20-29; Col. 5 Lines 15-18; Col. 6 lines 43; Col. 7 lines 33-35; Col 8 line 35-38] decoding a number of blocks of the compressed video stream to output a number of blocks of decoded video data, wherein the decoding is based on at least one motion compensation vector; [Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-37; Col. 5 lines 18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49] and deinterlacing at least some of the number of blocks of the decoded video data to output deinterlaced video data, wherein the deinterlacing of one of the blocks of the number of blocks is based on the at least one motion compensation vector [Abstract; Figs. 1-7; Col. 4 lines 29-50] if a prediction error energy for the at least one motion vector is less than a threshold. [fig. 6; col. 8 lines 34-58 (emphasis lines 48-58)]

8. As to claim 18, see discussion of claim 1 above.

9. As to claim 19, see discussion of claim 1 above.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 2 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Simsic et al. (Simsic) US 6,269,484 B1 in view of Johnson et al. (Johnson), Frequency Scalable Video Coding Using MDCT, IEEE, Pgs. V-477-V480, 1994.

12. As to claim 2, Simsic teaches the limitations of claim 1.

Simsic does not specifically teach squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block.

Johnson teaches squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block. [Pg. v-478 Col. 1 ¶ 2 - Col. 2 ¶ 1]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Johnson with the device of Simsic allowing for maximized coding performance improving image quality.

13. As to claim 20, see discussion of claim 2 above.

Art Unit: 2621

14. Claims 3, 14-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Zeng US 7,203,234 B1.

15. As to claim 3, Simsic teaches the limitations of claim 1.

Simsic does not teach a de-quantization scale factor compared to a threshold.

Zeng teaches a de-quantization scale factor compared to a threshold. [Col. 3 lines 49-65]

It would have been obvious to one of ordinary skill in the art to incorporate the teachings of Zeng into the device of Simsic (modified by Barrau) reducing artifacts and improving video quality.

16. As to claim 21, see discussion of claim 3 above.

17. As to claim 14, Simsic teaches decoding a compressed video stream to output a decoded video stream, wherein the decoding extracts at least one decode parameter, [Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-50; Col. 5 lines 18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49]

Simsic does not teach a de-quantization scale factor compared to a threshold.

Zeng teaches a de-quantization scale factor compared to a threshold. [Col. 3 lines 49-65]

It would have been obvious to one of ordinary skill in the art to incorporate the teachings of Zeng into the device of Simsic reducing artifacts and improving video quality.

18. As to claim 15, Simsic (modified by Zeng) teaches at least one decode parameter comprises a motion estimation vector. [Simsic – Abstract; Figs. 1-4; Col. 6 lines 56-65; Col. 4 lines 38-51]

19. As to claim 16, Simsic (modified by Zeng) generating the prediction error energy of the block. [Simsic – Col. 8 line 34-58; Col. 9 line 4-15]

20. Claims 7-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Zeng US 7,203,234 B1 further in view of Beattie US 2001/0002205 A1.

21. As to claim 7, Simsic teaches detinterlacing a block of a frame of video based on a vertical interpolation, if the block of the frame of the video is intra coded; [Col. 3 lines 6-14; Abstract; Fig. 5] deinterlacing the block of the frame of the video with a motion compensation vector that is derived from decoding the block of the frame of the video. [Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-37; Col. 5 lines 18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49]

Simsic does not specifically teach a prediction error energy being compared to a threshold; a de-quantization scale factor compared to a threshold; or generation of an updated motion compensation vector.

Simsic does not specifically teach a de-quantization scale factor compared to a threshold.

Zeng teaches a de-quantization scale factor compared to a threshold. [Col. 3 lines 49-65]

It would have been obvious to one of ordinary skill in the art to incorporate the teachings of Zeng into the device of Simsic reducing artifacts and improving video quality.

Simsic (modified by Zeng) does not specifically teach generation of an updated motion compensation vector.

Beattie teaches generation of an updated motion compensation vector. [¶ 0023; Figs. 2-3]

It would have been obvious to one of ordinary skill in the art to combine the teachings of Beattie into the device of Simsic (modified by Zeng) optimizing performance of video motion and improving video quality.

22. As to claim 8, Simsic (modified by Zeng, and Beattie) teaches performing motion estimation on the block of the video [Simsic - Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-37; Col. 5 lines 18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49] to generate the updated motion vector using the motion compensation vector as an initial candidate motion vector. [Beattie - ¶ 0023; Figs. 2-3]

23. As to claim 9, Simsic (modified by Zeng and Beattie) teaches decoding the frame of the video. [Simsic - Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-37; Col. 5 lines 18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49]

24. As to claim 12, Simsic (modified by Zeng and Beattie) teaches generating the prediction error energy of the block. [Beattie - ¶ 0002; Simsic - Col. 8 line 34-58; Col. 9 line 4-15]

25. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Zeng US 7,203,234 B1 in view of Beattie US 2001/0002205 A1 further in view of Barrau US 6,968,007 B2.

26. As to claim 10, Simsic (modified by Zeng and Beattie) teaches the limitations of claim 9.

Simsic (modified by Zeng, and Beattie) does not explicitly teach dequantizing a compressed bitstream that includes the frame of the video to generate a number of transform coefficients based on the de-quantizing scale factor; and performing an inverse transform operation on the number of transform coefficients to generate a number of pixels representative of the frame of the video.

Barrau teaches dequantizing a compressed bitstream that includes the frame of the video to generate a number of transform coefficients based on the de-quantizing scale factor; and performing an inverse transform operation on the number of transform coefficients to generate a number of pixels representative of the frame of the video. [Fig. 1; Figs. 3-6; Col. 3 lines 40-66]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Barrau with the device of Simsic (modified by Zeng, and Beattie) improving image quality and coding efficiency. [col. 1 line 36-40]

27. As to claim 11, Simsic (modified by Zeng, Beattie and Barrau) teaches decoding the frame of the video further comprises performing motion compensation for a block in the frame of the video if the block is not intra coded and has been encoded using motion compensation. [Simsic - Abstract; Figs. 1-7; Fig. 9; Col 4 lines 29-37; Col. 5 lines

Art Unit: 2621

18-28; Col. 6 lines 1-20; Col. 6 line 56 - Col. 7 line 21; Col. 7 lines 37-49; col. 9 lines 4-31]

28. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Beattie US 2001/0002205 A1 further in view of Zeng US 7,203,234 B1.

29. As to claim 28, Simsic (modified by Beattie) teaches the limitations of claim 26.

Simsic (modified by Beattie) does not teach a de-quantization scale factor compared to a threshold.

Zeng teaches a de-quantization scale factor compared to a threshold. [Col. 3 lines 49-65]

It would have been obvious to one of ordinary skill in the art to incorporate the teachings of Zeng into the device of Simsic (modified by Beattie) reducing artifacts and improving video quality.

30. Claims 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Beattie US 2001/0002205 A1.

31. As to claim 26, Simsic teaches a deinterlacer to deinterlace a block of a frame of video with a motion compensation vector that is derived from a decode operation performed on the frame of the video if a prediction error energy for the block is less than an energy threshold; [Abstract; Figs. 1-7; Col. 4 lines 29-50; col. 9 lines 4-31] and a

display to display the deinterlaced frame of the video, [Figs. 1-4; Abstract; Col. 4 lines 52-59; Col. 5 lines 12-28]

Simsic does not specifically teach a random access memory to store the deinterlaced frame of the video.

Beattie teaches a random access memory to store video. [Figs. 2-3 (28)]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Beattie with the device of Simsic improving coding efficiency and video display.

32. As to claim 27. Simsic (modified by Beattie) teach the display is a progressive screen display. [Figs. 1-4; Abstract; Col. 4 lines 52-59; Col. 5 lines 12-28]

33. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Zeng US 7,203,234 B1 in view of Beattie US 2001/0002205 A1 further in view of Johnson et al. (Johnson), Frequency Scalable Video Coding Using MDCT, IEEE, Pgs. V-477-V480, 1994.

34. As to claim 13, Simsic (modified by Zeng and Beattie) teaches the limitations of claim 12.

Simsic (modified by Zeng and Beattie) does not specifically teach squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block.

Johnson teaches squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block. [Pg. v-478 Col. 1 ¶ 2 - Col. 2 ¶ 1]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Johnson with the device of Simsic (modified by Zeng, and Beattie) allowing for maximized coding performance improving image quality.

35. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Beattie US 2001/0002205 A1 further in view of Johnson et al. (Johnson), Frequency Scalable Video Coding Using MDCT, IEEE, Pgs. V-477-V480, 1994.

36. As to claim 29, Simsic (modified by Beattie) teaches the limitations of claim 26.

Simsic (modified by Beattie) does not specifically teach the prediction error energy comprises a Discrete Cosine Transform energy for the block.

Johnson teaches the prediction error energy comprises a Discrete Cosine Transform energy for the block. [Johnson - Pg. v-478 Col. 1 ¶ 2 - Col. 2 ¶ 1]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Johnson with the device of Simsic (modified by Beattie) allowing for maximized coding performance improving image quality.

37. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Simsic et al. (Simsic) US 6,269,484 B1 in view of Zeng US 7,203,234 B1 and further in view of Johnson et al. (Johnson), Frequency Scalable Video Coding Using MDCT, IEEE, Pgs. V-477-V480, 1994.

38. As to claim 17, Simsic (modified by Zeng) teaches the limitations of claim 16.

Simsic (modified by Zeng) does not specifically teach squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block.

Johnson teaches squaring the values of a number of transform coefficients in the block to generate squared values; and summing the squared values to generate the prediction error energy for the block. [Pg. v-478 Col. 1 ¶ 2 - Col. 2 ¶ 1]

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Johnson with the device of Simsic (modified by Zeng) allowing for maximized coding performance improving image quality.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNER HOLDER whose telephone number is (571)270-1549. The examiner can normally be reached on M-Th, M-F 8 am - 3 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone

Art Unit: 2621

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anner Holder/

Examiner, Art Unit 2621 12/22/08

/Tung Vo/

Primary Examiner, Art Unit 2621